==========

Sequence Listing could not be accepted due to errors.
See attached Validation Report.
If you need help call the Patent Electronic Business Center at (866) 217-9197 (toll free).
Reviewer: Anne Corrigan
Timestamp: [year=2008; month=10; day=28; hr=12; min=9; sec=35; ms=332;]

==========

****

Reviewer Comments:
<210> 146
<211> 60
<212 DNA
<213> Artificial Sequence

<220>
<221> CDS
<223> CDR3 nucleic acid sequence of BV14 clonotype derived
from ST specimen of RA patients

<400> 146
tacttctgtg ccagcagttt tgggacagtc ctctcctacg agcagttctt 50
cgggccagga 60

Please insert a closing bracket ">" in the "<212>" numeric identifier above.

****

Validated By CRFValidator v 1.0.3

Application No: 10612468 Version No: 4.0

Input Set:

Output Set:

Started: 2008-10-28 11:54:10.310
Finished: 2008-10-28 11:54:14.268
Elapsed: 0 hr(s) 0 min(s) 3 sec(s) 958 ms
Total Warnings: 116
Total Errors: 118
No. of SeqIDs Defined: 168
Actual SeqID Count: 168

Error code		Error Description
W	213	Artificial or Unknown found in <213> in SEQ ID (1)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (1)
W	213	Artificial or Unknown found in <213> in SEQ ID (2)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (2)
W	213	Artificial or Unknown found in <213> in SEQ ID (8)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (8)
W	213	Artificial or Unknown found in <213> in SEQ ID (9)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (9)
W	213	Artificial or Unknown found in <213> in SEQ ID (10)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (10)
W	213	Artificial or Unknown found in <213> in SEQ ID (11)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (11)
W	213	Artificial or Unknown found in <213> in SEQ ID (12)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (12)
W	213	Artificial or Unknown found in <213> in SEQ ID (13)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (13)

Input Set:

Output Set:

Started: 2008-10-28 11:54:10.310
Finished: 2008-10-28 11:54:14.268
Elapsed: 0 hr(s) 0 min(s) 3 sec(s) 958 ms
Total Warnings: 116
Total Errors: 118
No. of SeqIDs Defined: 168
Actual SeqID Count: 168

Error code		Error Description
W	213	Artificial or Unknown found in <213> in SEQ ID (14)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (14)
W	213	Artificial or Unknown found in <213> in SEQ ID (15)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (15)
W	213	Artificial or Unknown found in <213> in SEQ ID (16)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (16)
W	213	Artificial or Unknown found in <213> in SEQ ID (17)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (17)
W	213	Artificial or Unknown found in <213> in SEQ ID (18)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (18)
W	213	Artificial or Unknown found in <213> in SEQ ID (19)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (19)
W	213	Artificial or Unknown found in <213> in SEQ ID (20)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (20)
W	213	Artificial or Unknown found in <213> in SEQ ID (21)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (21)
W	213	Artificial or Unknown found in <213> in SEQ ID (22)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (22)

Input Set:

Output Set:

Started: 2008-10-28 11:54:10.310
Finished: 2008-10-28 11:54:14.268
Elapsed: 0 hr(s) 0 min(s) 3 sec(s) 958 ms
Total Warnings: 116
Total Errors: 118
No. of SeqIDs Defined: 168
Actual SeqID Count: 168

Error code		Error Description
W	213	Artificial or Unknown found in <213> in SEQ ID (23)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (23)
W	213	Artificial or Unknown found in <213> in SEQ ID (24)
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (24)
W	213	Artificial or Unknown found in <213> in SEQ ID (25) This error has occured more than 20 times, will not be displayed
E	224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (25) This error has occured more than 20 times, will not be displayed
E	249	Order Sequence Error <211> -> <213>; Expected Mandatory Tag: <212> in SEQID (146)
E	250	Structural Validation Error; Sequence listing may not be indexable

SEQUENCE LISTING

<110> Zhang, Jingwu Z.
Ho, Walter Kowk Keung
Zhang, Dongqing
Sun, Wei

<120> T Cell Receptor CDR3 Sequence and Methods for
Detecting and Treating Rheumatoid Arthritis

<130> D6622

<140> US 10/612,468
<141> 2003-07-02

<160> 168

<210> 1
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> CDS
<223> part of the complementary determining region-3 (CDR3)
in the V(16 family (BV16 gene) of T cell receptors
(TCR) in patients with rheumatoid arthritis (RA)

<400> 1
agccaagctg acgggaccca t 21

<210> 2
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> CDS
<223> part of the complementary determining region-3
(CDR3) in the V(14 family (BV14 gene) of TCR in
patients with RA

<400> 2
agttccgggg gcagtctgtt c 21

<210> 3
<211> 7
<212> PRT
<213> Homo sapiens

<220>
<221> Peptide
<223> conserved amino acid sequence derived from CDR3 of
TCR beta-chain BV16 in patients with RA

<400> 3
Ser Gln Ala Asp Gly Thr His

5

<210> 4
<211> 7
<212> PRT
<213> Homo sapiens

<220>
<221> Peptide
<223> conserved amino acid sequence derived from CDR3 of
TCR beta-chain BV14 in patients with RA

<400> 4
Ser Ser Gly Gly Ser Leu Phe
5

<210> 5
<211> 4
<212> PRT
<213> Homo sapiens

<220>
<221> Peptide
<223> amino acid sequence motif derived from CDR3 of TCR
beta-chain BV16 in patients with RA

<400> 5
Ser Trp Gly Gly

<210> 6
<211> 113
<212> PRT
<213> Homo sapiens

<220>
<221> Domain
<223> amino acid sequence of human (beta-chain variable
region V(14 of T cell receptors

<400> 6
Met Gly Pro Gln Leu Leu Gly Tyr Val Val Leu Cys Leu Leu Gly
5 10 15
Ala Gly Pro Leu Glu Ala Gln Val Thr Gln Asn Pro Arg Tyr Leu
20 25 30
Ile Thr Val Thr Gly Lys Lys Leu Thr Val Thr Cys Ser Gln Asn
35 40 45
Met Asn His Glu Tyr Met Ser Trp Tyr Arg Gln Asp Pro Gly Leu
50 55 60
Gly Leu Arg Gln Ile Tyr Tyr Ser Met Asn Val Glu Val Thr Asp
65 70 75
Lys Gly Asp Val Pro Glu Gly Tyr Lys Val Ser Arg Lys Glu Lys
80 85 90
Arg Asn Phe Pro Leu Ile Leu Glu Ser Pro Ser Pro Asn Gln Thr
95 100 105
Ser Leu Tyr Phe Cys Ala Ser Ser
110

<210> 7
<211> 96
<212> PRT
<213> Homo sapiens

<220>
<221> Domain
<223> amino acid sequence of human (beta-chain variable
region V(16 of T cell receptors

<400> 7
Ile Glu Ala Gly Val Thr Gln Phe Pro Ser His Ser Val Ile Glu
5 10 15
Lys Gly Gln Thr Val Thr Leu Arg Cys Asp Pro Ile Ser Gly His
20 25 30
Asp Asn Leu Tyr Trp Tyr Arg Arg Val Met Gly Lys Glu Ile Lys
35 40 45
Phe Leu Leu His Phe Val Lys Glu Ser Lys Gln Asp Glu Ser Gly
50 55 60
Met Pro Asn Asn Arg Phe Leu Ala Glu Arg Thr Gly Gly Thr Tyr
65 70 75
Ser Thr Leu Lys Val Gln Pro Ala Glu Leu Glu Asp Ser Gly Val
80 85 90
Tyr Phe Cys Ala Ser Ser
95

<210> 8
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV1 used in real-time
PCR analysis

<400> 8
aagcacctga tcacagcaac t 21

<210> 9
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV1 used in real-time
PCR analysis

<400> 9
tagttcagag tgcaagtcag g 21

<210> 10
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV2 used in real-time
PCR analysis

<400> 10
ggttatctgt aagagtggaa cct 23

<210> 11
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV2 used in real-time
PCR analysis

<400> 11
aggatgggca ctggtcactg t 21

<210> 12
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV3 used in real-time
PCR analysis

<400> 12
tcgagatatc tagtcaaaag gacg 24

<210> 13
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV3 used in real-time
PCR analysis

<400> 13
ggtgctggcg gactccagaa t 21

<210> 14
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV4 used in real-time
PCR analysis

<400> 14
aagcagggat atctgtcaac gt 22

<210> 15
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV4 used in real-time
PCR analysis

<400> 15
ttcagggctc atgttgctca c 21

<210> 16
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV5 used in real-time
PCR analysis

<400> 16
gatcaaaacg agaggacagc a 21

<210> 17
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV5 used in real-time
PCR analysis

<400> 17
agcaccaagg cgctcacatt ca 22

<210> 18
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV6 used in real-time
PCR analysis

<400> 18
ctcaggtgtg atccaatttc a 21

<210> 19
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV6 used in real-time
PCR analysis

<400> 19
cccccgctct gtgcgctgga t 21

<210> 20
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV7 used in real-time
PCR analysis

<400> 20
catgggaatg acaaataaga agtct 25

<210> 21
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV7 used in real-time
PCR analysis

<400> 21
tggctgcagg gcgtgtaggt g 21

<210> 22
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV8 used in real-time
PCR analysis

<400> 22
ccccgccatg aggtgacaga g 21

<210> 23
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV8 used in real-time
PCR analysis

<400> 23
gagtccctgg gttctgaggg c 21

<210> 24
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV9 used in real-time
PCR analysis

<400> 24
ccaaaatacc tggtcacaca g 21

<210> 25
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV9 used in real-time
PCR analysis

<400> 25
ccagggaatt gatgtgaaga tt 22

<210> 26
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV10 used in real-time
PCR analysis

<400> 26
acctagactt ctggtcaaag ca 22

<210> 27
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV10 used in real-time
PCR analysis

<400> 27
ggactggatc tccaaggtac a 21

<210> 28
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV11 used in real-time
PCR analysis

<400> 28
ttatagggac aggaaagaag atc 23

<210> 29
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV11 used in real-time
PCR analysis

<400> 29
atgtgagggc ctggcagact c 21

<210> 30
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV12 used in real-time
PCR analysis

<400> 30
caagacacaa gatcacagag aca 23

<210> 31
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV12 used in real-time
PCR analysis

<400> 31
ggcagcagac tccagagtga g 21

<210> 32
<211> 23

<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV13 used in real-time
PCR analysis

<400> 32
tgaagacagg acagagcatg aca 23

<210> 33
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV13 used in real-time
PCR analysis

<400> 33
cacagatgtc tgggagggag c 21

<210> 34
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV14 used in real-time
PCR analysis

<400> 34
acccaagata cctcatcaca gtg 23

<210> 35
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV14 used in real-time
PCR analysis

<400> 35
agaggtctgg ttggggctgg g 21

<210> 36
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind

<223> forward primer specific for TCR BV15 used in real-time
PCR analysis

<400> 36
tcacaaagac aggaaagagg att 23

<210> 37
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV15 used in real-time
PCR analysis

<400> 37
ggggatggca gactctaggg a 21

<210> 38
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV16 used in real-time
PCR analysis

<400> 38
gttccccagc cacagcgtaa ta 22

<210> 39
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV16 used in real-time
PCR analysis

<400> 39
cagttctgca ggctgcacct t 21

<210> 40
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV17 used in real-time
PCR analysis

<400> 40
gtccccaaag tacctgttca ga 22

<210> 41
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV17 used in real-time
PCR analysis

<400> 41
agctgtcggg ttcttttggg c 21

<210> 42
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV18 used in real-time
PCR analysis

<400> 42
agacacctgg tcaggaggag g 21

<210> 43
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV18 used in real-time
PCR analysis

<400> 43
tgccgaatct cctcgcacta c 21

<210> 44
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV19 used in real-time
PCR analysis

<400> 44
ccaggacatt tggtcaaagg aaaa 24

<210> 45
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV19 used in real-time
PCR analysis

<400> 45
cagtgccgtg tctcccggtt c 21

<210> 46
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV20 used in real-time
PCR analysis

<400> 46
gaccctggtg cagcctgtg 19

<210> 47
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV20 used in real-time
PCR analysis

<400> 47
gaggaggagc ttcttagaac t 21

<210> 48
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV21 used in real-time
PCR analysis

<400> 48
cccagatata agattacaga gaaa 24

<210> 49
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV21 used in real-time
PCR analysis

<400> 49
ctggatcttg agagtggagt c 21

<210> 50
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV22 used in real-time
PCR analysis

<400> 50
cacagatggg acaggaagtg atc 23

<210> 51
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV22 used in real-time
PCR analysis

<400> 51
gtcctccagc tttgtggacc g 21

<210> 52
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV23 used in real-time
PCR analysis

<400> 52
aagagggaaa cagccactct g 21

<210> 53
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV23 used in real-
time PCR analysis

<400> 53
cagctccaag gagctcatgt t 21

<210> 54

<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV24 used in real-time
PCR analysis

<400> 54
ccaagatacc aggttaccca gttt 24

<210> 55
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV24 used in real-time
PCR analysis

<400> 55
caggcctggt gagcggatgt c 21

<210> 56
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer specific for TCR BV25 used in real-time
PCR analysis

<400> 56
aaaacatctt gtcagagggg aa 22

<210> 57
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BV25 used in real-time
PCR analysis

<400> 57
tgaatcctca agcttcgtag c 21

<210> 58
<211> 19
<212> DNA
<213> Artificial Sequence

<220>

<221> primer_bind
<223> forward primer specific for TCR BC used in real-time PCR
analysis

<400> 58
cagcgccctt gtgttgatg 19

<210> 59
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer specific for TCR BC used in real-time PCR
analysis

<400> 59
aagcgctggc aaaagaagaa 20

<210> 60
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> BC primer used for run-off reactions

<400> 60
cgacctcggg tgggaaca 18

<210> 61
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> FAM (expand)-labeled BC primer used for run-off reactions

<400> 61
cacagcgacc tcgggtggg 19

<210> 62
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> FAM (expand)-labeled BJ primer used for run-off reactions

<400> 62
actgtgagtc tggtgccttg t 21

<210> 63
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> FAM (expand)-labeled BJ primer used for run-off reactions

<400> 63
acaacggtta acttggtccc cgaa 24

<210> 64
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> FAM (expand)-labeled BJ primer used for run-off reactions

<400> 64
ggtcctctac aacagtgagc caac 24

<210> 65
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> FAM (expand)-labeled BJ primer used for run-off reactions

<400> 65
aagagagaga gctgggttcc actg 24

<210> 66
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> FAM (expand)-labeled BJ primer used for run-off reactions

<400> 66
ggagagtcga gttccatca 19

<210> 67
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> FAM (expand)-labeled BJ primer used for run-off reactions

<400> 67
tgtcacagtg agcctggtcc catt 24

<210> 68
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> FAM (expand)-labeled BJ primer used for run-off reactions

<400> 68
cctggcccga agaactgctc a 21

<210> 69
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> FAM (expand)-labeled BJ primer used for run-off reactions

<400> 69
gtcctccagt acgctcagcc taga 24

<210> 70
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> FAM (expand)-labeled BJ primer used for run-off